

Application No. 10/536,462

**REMARKS**

Favorable reconsideration and allowance of the subject application are respectfully requested. Claims 1-23, 25, 26 and 27 are pending in the present application, with claims 1, 13, 14 and 27 being independent.

***Claim Rejections under 35 U.S.C. §112***

The Examiner rejected claims 12 and 23 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement and claim 26 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite. These rejections are respectfully traversed.

Claim 12 is rejected because there is no support for "positioning a fuel cell in the reservoir". Page 27 of the clear copy of the specification at paragraph 3 recites that there is a "fuel sensor 18, for example a hydrogen sensor, to determine the content of fuel in the first electrode 3 or in a layer adjacent to it". Claim 1 recites "a reservoir containing fuel disposed with the first electrode". This is clearly illustrated in Figures 1 and 3. Therefore claim 12 is fully supported by the originally filed specification.

Claim 23 recites that there are no separate fuel reservoirs which can only mean that there are no fuel reservoirs separate from (in addition to) the one claimed in claim 1. Claim 1 has no "separate" fuel reservoir so there is no antecedent basis problem.

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***Claim Rejections under 35 U.S.C. §103***

The Examiner rejected claims 1-10, 12-22 and 26 under 35 U.S.C. §103, as being unpatentable over Chason et al (US Pub. No. 2003/0015705) in view of Gore (US 6,855,443) and Sanders (US Pub. No. 2004/0101740) while Claim 11 is rejected under 35 U.S.C. §103, as being unpatentable over Chason et al in view of Gore and Sanders and further in view of Mukerjee et al (US Pub. No. 2002/0168560) and claims 23 and 25 are rejected under 35 U.S.C. §103, as being unpatentable over Chason et al in view of Gore and Sanders and further in view of Anderton (US 4,164,172). These rejections are respectfully traversed insofar as they pertain to the presently pending claims.

Claim 1 is rejected over a combination of three references and according to the statement of the rejection the primary reference to Chanson is cited for teaching an integrated circuit that may contain an energy component that may be a fuel cell and may have a substrate. Every other feature of claim 1 is not disclosed by Chason, as indicated by the Rejection. At this point it is noted that claim 1 requires a fuel cell, located on the semiconductor substrate, comprising (1) a first electrode and a second electrode configured to define a reaction region, where one of the first and second electrodes is a cathode and the other is an anode; (2) a catalytic layer that is permeable at least to protons and is configured to permit catalytic activity, the layer positioned between the first electrode and the second electrode; (3) a reservoir containing fuel disposed with the first electrode; (4) a reactant delivery device configured to provide a reactant, where the reactant reacts with protons from the fuel to generate current, the reactant delivery device positioned on the side of the second electrode; (5) where the

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fuel is integrated into the material of the first electrode. The rejection clearly states that each of the items (1)-(5) are not disclosed by the primary reference to Chanson.

Items (1) and (2) are indicated as being obvious because it is allegedly well known in the art and the secondary reference to Gore is cited for items (3) and (4) and Sanders is cited for showing item (5).

Applicants traverse this rejection on the grounds that each element of the claim is being addressed separately. The secondary reference to Gore does not have a reservoir containing fuel disposed with the first electrode wherein the fuel is integrated into the material of the first electrode. Gore has a fuel container 108 and a separate anode 102. One of the objects of the present invention is to provide the benefit that no separate fuel infeed channels have to be provided as a result of a layer integrated into the fuel cell in which the fuel is already incorporated. (clean copy of spec. page 20, penultimate paragraph). Thus no one skilled in the art would take a part of Gore and combine it with Chanson. As such, no prima facie case of obviousness has been established. Still further, the secondary reference to Sanders is addressed to the storage of gases by using catalyst-coated hollow microspheres and it is not seen how this structure would be combined with a structure having a first and second electrode with a catalytic layer between them. Further no consideration is given as to effecting this change in an integrated structure as required by claim 1.

It is submitted that not one of the 5 delineated and claimed features exists in a vacuum and the cobbling together of individual elements from multiple references without a prima facie case of obviousness being established can serve to meet the requirements of 35 USC 103 to reject claim 1.

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With respect to independent claim 13, the rejection indicates, at page 8, that claim 13 is rejected for the same reasons as claim 1. Applicants submit that the reasons discussed above for traversal equally apply to claim 13 in view of the statement of the rejection. Thus claim 13 is also submitted as allowable over the references of record under 35 USC 103.

Claim 14 is rejected because Sanders allegedly teaches that a catalyst can store and release oxygen. From this showing the rejection concludes that "it would have been obvious to include a reactant integrated into the material of the second electrode employed in the device of Chason, as modified by Gore and Sanders because Sanders teaches this can eliminate the need for expensive storage and handling equipment." Still further the Rejection ignores the limitation of "only reactant from the reactant delivery device can react with the fuel" by indicating that this is only a manner of operating an apparatus without any limitation being added. This is seen to be appropriate because "the prior art apparatus teaches all the structural limitations of the claim".

Applicants traverse this rejection on the grounds that:

(1) claim 14 requires both that the reactant for generating a quantity of current is integrated into the material of the second electrode and that the fuel is integrated into the first electrode. At its most liberal interpretation, even if, assuming arguendo, Sanders is combined as required, the reference only discusses that the microspheres can be used as an anode (Para. [0080]);

(2) the term "only reactant from the reactant delivery device can react with the fuel does limit the functioning of the device and the prior art does not have the structure to accomplish the function. No one piece of prior art is even alleged

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to show all the limitations which is what is being referred to in the quoted portion wherein "the prior art apparatus teaches all the structural limitations of the claim"; and

(3) claim 14 recites inter alia all the limitations of claim 1 discussed above and for the reasons presented above therefore is not obvious to one skilled in the art based on the disclosures of Chason, Gore and Sanders under 35 USC 103.

Claims 2-12 and 15-22 depend from and contain all the limitations of either independent claim 1 or independent claim 14 and even if the references to Mukerjee and Anderton are correctly cited for their disclosures, they add nothing toward meeting the features of claims 1 and 14 incorporated into the dependent claims. Thus claims 2-12 and 15-22 are submitted as allowable for at least the same reasons as independent claims 1, 13 and 14.

New claim 27 limits the fuel cell to only three elements via the transitional language "consisting of." That is, a first electrode 3 includes fuel integrated into a material of the first electrode, a second electrode 4 which includes a reactant delivery device configured to provide a reactant, where the reactant reacts with protons from the fuel to generate current, and a catalytic layer (membrane) 5 that is permeable at least to protons and is configured to permit catalytic activity, the layer positioned between the first electrode and the second electrode. Therefore Claim 27 is allowable for at least the same reasons as claim 1 as discussed above.

### CONCLUSION

Applicants have made a diligent effort to place the claims in condition for

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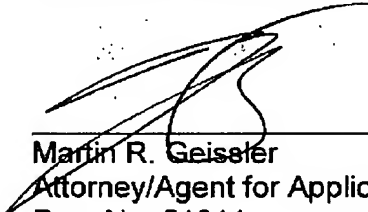
allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Martin R. Geissler, Applicants' Attorney at 1.703.621.7140 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3828 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

**Date: April 25, 2011**

Respectfully Submitted,



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